found one live pupa in a broken-off "chimney," and one female ovipositing on different plants. At a third site he observed three unopened "chimneys," plus 10 eggs on yucca leaves. At the final site he found two "chimneys." All sites are within a few miles of each other in Calloway County, Kentucky.

The Yucca Giant-Skipper has not been published as occurring in Illinois (U.S.G.S. state lists) or Missouri (J. R. Heitzman pers. com.). Leroy C. Koehn (pers. com.) reported that he has found colonies in western Tennessee, but these data have not been formally published.

These colonies represent the northern-most known occurrence of a breeding colony of *M. yuccae* along the Mississippi River. On the East Coast it extends northward to southeastern Virginia at about the same latitude as the Calloway County site; and farther west it is found in Kansas and westward also at about the same latitude (Opler & Malikul 1998).

Interestingly, Yucca has been so widely introduced and adventive populations have spread so readily beyond it's historic range that it is not completely clear how far north natural populations of this plant occur (J. N. N. Campbell pers. com.). According to Medley (1993), the species is not native to Kentucky. However, with populations of the plant seemingly well established, it appears that the Yucca Giant-Skipper may now be established along with its host plant. These small colonies are vulnerable to habitat destruction, over collecting and other dangers. We hope to investigate protection of these sites and to seek other colonies in the area.

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FEMALE NORTH AMERICAN *EVERES* HÜBNER, [1819] AND THE IDENTITY OF *LYCAENA SISSONA* W. G. WRIGHT, 1905 (LYCAENIDAE)

Additional key words: genitalia, identification, subspecies.

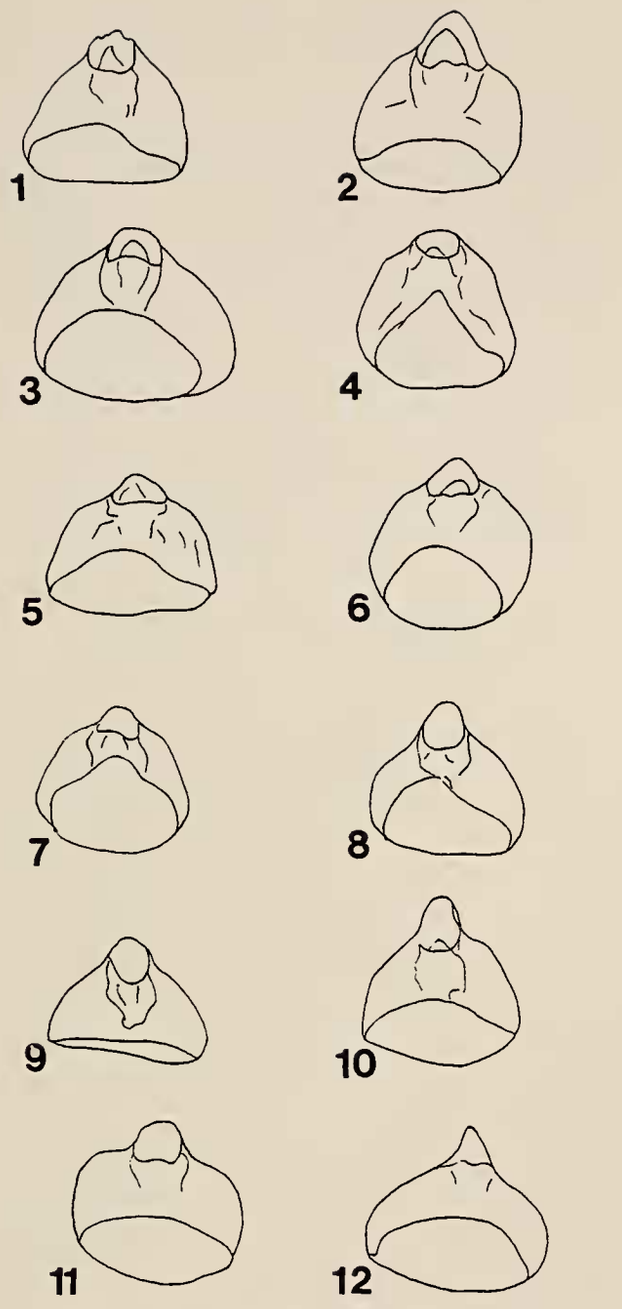
Two similar species, *Everes amyntula* (Boisduval, 1852) and *Everes comyntas* (Godart, [1824]) (Lycaenidae: Polyommatinae), are broadly sympatric and may fly together in parts of the western United States and adjacent Canada (Scott 1986, Stanford & Opler 1993, Layberry et al. 1998, Guppy & Shepard 2001). The former is widespread while *E. comyntas* apparently occurs in scattered populations west of the Rocky Mountains, but, at times, the latter may be the only or most abundant species at some locales. Although a number of wing traits have been implicated as useful in separating these species (e.g., Klots 1951, Downey 1975, Fisher 1981, Pyle 1981, Opler 1999), individual, seasonal, and geographical variation confound their identity. This variation has not been thoroughly investigated and it may be that superficial differences will have to be elaborated at the local level. Males have demonstratively different genitalia, most readily seen in the shape of the uncus (Bethune-Baker 1913, Johnson 1972, Dornfeld 1980, Fisher 1981, Scott 1986, Guppy & Shepard 2001). Females generally have not been distinguished except by association with males and superficial characters of apparently limited value. One character that has not been mentioned, but may useful in separating females of the two species, is in the submargin of the dorsal hindwing. All female *E. amyntula* examined from Arizona, California, Colorado, Nevada, Oregon, and Utah (n = 265) had a row of usually several pale submarginal macules. *Everes comyntas* from Arizona and California (n = 54), however, lacks these macules except on apparent short-day phenotypes having considerable dorsal blue (e.g., Field 1938, Shapiro 1974a). It thus seems that individuals without pale submarginal macules on the dorsal

hindwing are *E. comyntas*; those with macules could be either species (e.g., see Howe 1975, wherein all three possibilities are illustrated). Over 100 female *Everes* (76 *E. amyntula*, 42 *E. comyntas*) from the United States and northern Mexico have been dissected and a difference was detected between the genitalia of taxa commonly placed within *E. comyntas* and *E. amyntula*. The genital plate (sterigma) of *E. comyntas* is small and rounded (Figs. 1–12), while that of *E. amyntula* is comparatively larger, more triangular, and some (Figs. 17, 18, 21, 22) exhibit a notch at its posterior edge (Figs. 13–24). These exhibit some variation within both species, locally (e.g., Figs 1–4; 19–22) and perhaps geographically, but their overall gestalt remains, including that of an *E. comyntas* from Veracruz, Mexico.

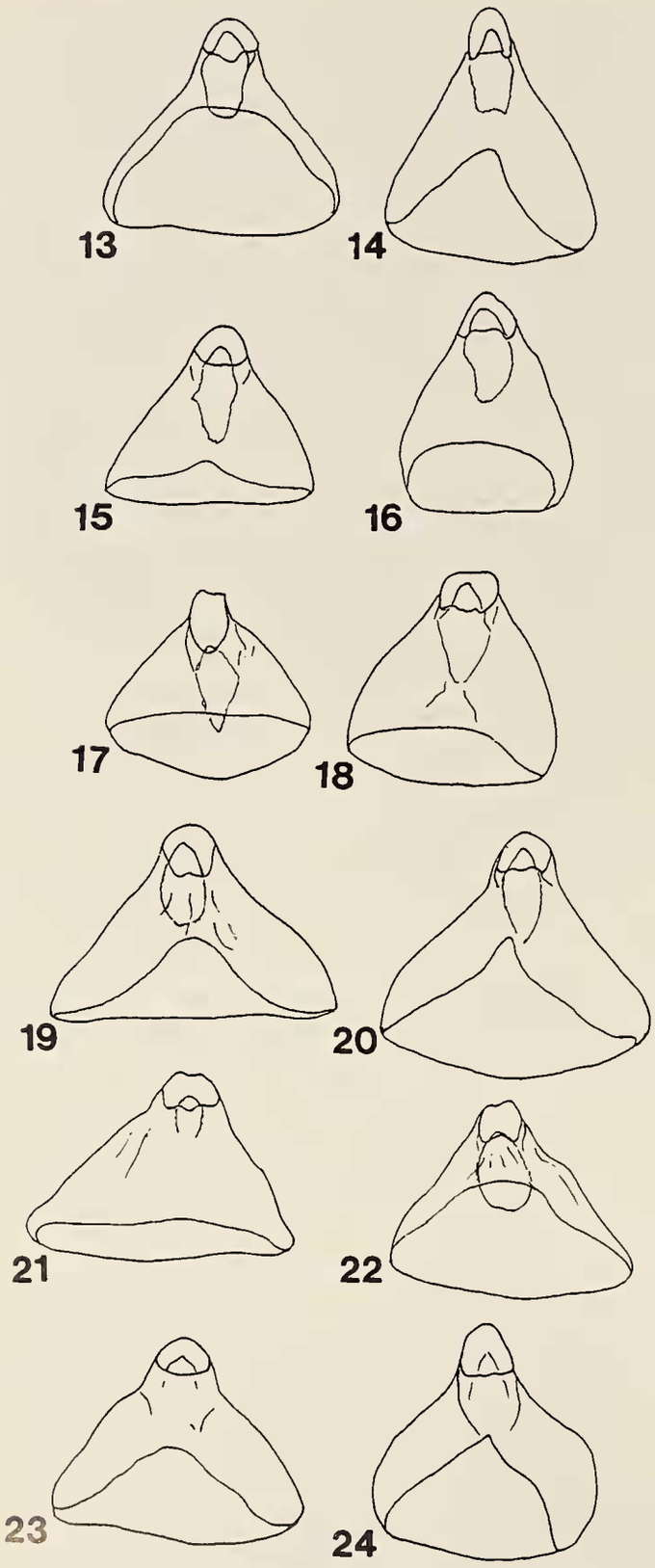
Wright (1905) illustrated, named, and briefly described *Lycaena sissona* based upon a single female from "Sisson, Cal." (now the city of Mt. Shasta);. The holotype, spread with the ventral surface upward and housed at the California Academy of Sciences (Tilden 1975), has the following labels: small, white, handwritten - / 400 /; red, printed - / HOLOTYPE ♀ / Lycaena / sissona Wright / Det. J. W. Tilden 1975 /; white, printed and handwritten - / W. G. WRIGHT / Plesiotype No. 400 / Illustrated in his / Butterflies of / the West Coast / Calif. Acad. Sci. Coll. /; white, printed and handwritten - / California Academy / of Sciences / Type / No. 4319 /; white, printed and handwritten - / Genitalic Vial / GTA - 12243 /. The specimen appears to be in the same condition as when it was originally photographed (Wright 1905).

Lycaena sissona has largely been treated as a synonym of *Everes comyntas comyntas* (Comstock 1927, McDunnough 1938, dos Passos 1964, Miller & Brown 1981, 1983), but was placed as a synonym of *E. amyntula amyntula* "based upon Wright's illustration" by Ferris (1989). As far as can be determined, the type has not heretofore been critically examined. Wright's (1905) illustration is of the ventral surface and, as noted above, the only potentially useful characteristic to separate females of the two species is on the dorsal hindwing. The dorsal surface of the type is uniformly brown except for a vague orange macule proximad to a vague black marginal spot in hindwing cell CuA_1–CuA_2. The absence of submarginal macules and the configuration of its genital plate (Fig. 6) clearly identifies the specimen as an *E. comyntas*.

Western *E. comyntas*, specifically those in California, have not been elaborated. Dornfeld (1980), Emmel et al. (1998), and Guppy and Shepard (2001) have all considered *E. comyntas comyntas* to embrace populations in the western United States and southwestern Canada. These have a paler and grayer venter than that of populations from the eastern United States and thus the white halos around the black discal macules are less distinct. The submarginal row of macules on the ventral forewing is less complete and less well-defined on individuals from California as are the



FIGS. 1–12. Dorsal view of the genital plate of female *Everes comyntas* (numbers following data are GTA genitalic vial numbers). 1–4. CA: Sutter Co.; Sutter bypass, Hwy. 20, E of Meridian, 29 May 1989 (11541, 11542, 11543, 11221), 5. CA: Colusa Co.; Ca 20 at Ca 45, W of Meridian, 29 May 1989 (11544), 6. holotype of *Lycaena sissona* (12243), 7. CT: Hartford Co.; New Britain (7129), 8. MS: Nachez Trace, 8 mi. S of Tupelo, 13 June 1972 (7139), 9. MN: Itasca Co.; Deer River, 29 June 1971 (7130), 10. WI: Iron Co.; Rt. 2, 29 June 1971 (11219), 11. AZ: Santa Cruz Co.; Sycamore Canyon, 22 June 1983 (11551), 12. AZ: Santa Cruz Co.; Sycamore Canyon, 9 July 1980 (11552).



FIGS. 13–24. Dorsal view of the genital plate of female *Everes amyntula* (numbers following data are GTA genitalic vial numbers). 13. NV: Mineral Co.; White Mts., road to Sugarloaf, 5.1 mi. S of Montgomery Pass, 1 July 1991 (11212), 14. NV: Nye Co.; Toiyabe Mts., Jett Canyon, 17 May 1990 (7142), 15. NV: Clark Co.; Moapa Valley, California Wash, 18 June 2000 (11181), 16. CA: Nevada Co.; S Fork of Yuba River, N of Nevada City, 13 May 1985 (11546), 17. CO: Garfield Co.; White River Plateau, Coffee Pot Springs, 10100′, 27 June 1963 (11353), 18. NV: Elko Co.; Jarbidge Mts., Bear Creek Summit, 7 Aug. 1980 (7160), 19. NV: White Pine Co.; Schell Creek Range, Timber Creek, 5.6 mi. E of Nv 486, 15 July 1981 (7157), 20. NV: White Pine Co.; Schell Creek Range, Berry Creek, 2.3–5 mi. E of Nv 486, 16 July 1981 (11555), 21. NV: White Pine Co.; Snake Range, Baker Creek Campground, 16 July 1980 (7159), 22. NV: White Pine Co.; Steptoe Valley, Warm Springs, 24 June 1987 (7154), 23. NV: Washoe Co.; Carson Range, Tahoe Meadows, 10 July 1990 (11214), 24. NV: Carson City; Carson Range, Nv 28, 2.0 mi. S of Washoe Co. line, 1 July 1985 (7128).

marginal macules on the ventral hindwing. Also on the ventral hindwing, the orange macule or macules towards the tornus are notably paler in California, not bright orange. These characters conform with the holotype of *Lycaena sissona* and indicate that populations in California and perhaps elsewhere in western North America should be treated as a recognizable subspecies, *Everes comyntas sissona* (W. G. Wright, 1905), **new combination**.

In comparison with Californian populations of *E. amyntula amyntula*, *E. comyntas sissona* has a more rounded forewing termen (this appears as a useful character throughout the distribution of both species, contra Downey 1975), has less dorsal blue (usually without, except on the short-day form), the ventral hindwing orange is usually more prominent, and the ventral forewing macules are usually further from the submarginal macules and form a straighter row (usually more sinuate on *E. amyntula*). The male has a broader black margin on the dorsal forewing (usually very thin on *E. amyntula*) and usually has at least one orange macule on the dorsal hindwing (usually absent on *E. amyntula*). The female of *E. comyntas* has no submarginal pattern on the dorsal hindwing (again, except on the short-day form); these are nearly always prominent on *E. amyntula*. Most male *E comyntas* from throughout the species' distribution have a thin line of black scales at the distal end of the forewing discal cell whereas this was not seen on examined *E. amyntula*. Females of both species often have a similar and sometimes broader black mark in the discal cell. This is most readily seen on extensively blue individuals.

In California, *E. comyntas* apparently mostly inhabits lowlands, frequently along ditches and other waterways (Opler & Langston 1968, Shapiro 1974a, 1974b, but see Garth & Tilden 1963); *E. amyntula* is largely montane (Comstock 1927, Emmel & Emmel 1962, Shapiro et al. 1979). In Oregon, the two species fly sympatrically and synchronically at several sites in the Coast Range (fide A. D. Warren). *Everes comyntas* has a long flight season and may have two to five broods annually (Opler & Langston 1968, Shapiro 1974a) whereas *E. amyntula* are apparently univoltine or bi-

voltine (Emmel & Emmel 1962, 1973, Shapiro et al. 1979). Both species use a variety of legumes (Fabaceae) as larval hostplants (Emmel & Emmel 1962, 1973, Shapiro 1974a, 1974b, Shapiro et al. 1979), including alien taxa (Shapiro 2002). Whether there are any hostplant preferences for either species, except those imposed ecologically, has not been reported in California. In Colorado, *E. comyntas* uses larval hostplants occupying more mesic sites than those of *E. amyntula* (Scott 1992).

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